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EXAMINER	
VAZQUEZ, ARLEEN M	

ART UNIT	PAPER NUMBER
2829	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/558,385	ITO ET AL.	
	Examiner	Art Unit	
	Arleen M. Vazquez	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-12,14-16 and 19-22* is/are rejected.

7)☒ Claim(s) *4,13,17,18 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,5 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Reynolds et al. (US 5,547,537).***

As to claims 1,5 and 20, ***Reynolds et al.*** discloses in Figures 1 and 2 an electronic device test apparatus for testing DUTs by pushing their input/output terminals against contact units of a test head, provided with at least a moving means (10) for picking up and moving the DUTs (26) and having suction means (24) for holding and picking up said DUT (26), a first imaging means (50) for capturing an image of one main surface (surface of die facing up to imaging means 50 opposed to surface 28) of a DUT (26) before being picked up by the moving means (10), a second imaging means (52) for capturing an image of another main surface (28) of a DUT (26) after being picked up by a moving means (10), and an identifying means (controller and computer connected to system 50,52,54 and 56, Col. 3 lns 4-22,32-47, Col. 5 ln47-Col.6 ln2) for calculating the position (X,Y) and posture (angle) of the DUT (26) picked up by the moving means (10) from the image information captured by the first imaging means (50) and the second imaging means (52) and identifying the relative position (X,Y) and posture (angle) of the DUT (26) picked up by the moving means (10) with respect to a contact

unit (40) based on the results of calculation (Col. 6 lns 46-51), wherein the moving means (10) corrects the position (X,Y) and posture (angle) of the DUT (26) based on the relative position and posture of the DUT identified by the identifying means (Col. 6 lns 46-51).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-3 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Reynolds et al. (US 5,547,537)*** in view of ***Farnworth et al. (US 6,150,828)***.

As to claims 2 and 21, ***Reynolds et al.*** discloses everything above except wherein the identifying means calculates the position and posture of the outside shape of said one main surface in said DUT before being picked up by the moving means and the position and posture of the input/output terminals of said DUT before being picked up by the moving means from image information captured by the first imaging means, calculates the position and posture of the outside shape of the other main surface in said DUT after being picked up by the moving means from image information captured by the second imaging means, and calculates the position and posture of the input/output terminals of the DUT after being picked up by the moving means based on the results of calculations.

However, ***Farnworth et al.*** discloses wherein the identifying means (computer, Col. 9 lns 66-67, Col. 12 lns 58-64) calculates the position (X,Y) and posture (angle of DUT 202) of the outside shape (by find rulers, Col. 10 lns 9-24) of said one main surface (surface with contact terminals 204 Fig.15) in said DUT (202) before being picked up by the moving means (52 Fig. 3B) and the position and posture of the input/output terminals (204) of said DUT (204) before being picked up by the moving means (52) from image information captured by the first imaging means (24, Figs.3B and 4), calculates the position (X,Y) and posture (angle) of the outside shape of other main surface (sides of DUT 202, Col. 11 lns 24-27) in said DUT (202) after being picked up by the moving means (52) from image information captured by the second imaging means (30 Fig.1, Col.11 lns 22-35), and calculates the position and posture of the input/output terminals (204) of the DUT (202) after being picked up by the moving means (52) based on the results of calculations (Col. 11 lns 31-67).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having calculations based on the information received from the imaging means based on position and posture or the DUT as taught as ***Farnworth et al.*** to assure quality of the DUT's based on images taken by having the correct positioning and alignment of the DUT's when are being photograph by imaging means.

As to claims 3 and 22, ***Reynolds et al.*** discloses everything above except wherein the apparatus is further provided with a third imaging means for capturing an image of the other main surface of said DUT before being picked up by the moving

means, and the identifying means calculates the position and posture of the input/output terminals of the DUT after being picked up by the moving means from the image information captured by the first imaging means, second imaging means, and third imaging means and identifies the relative position and posture of the DUT after being picked up by the moving means with respect to said contact unit based on the results of these calculations. However, ***Farnworth et al.*** discloses wherein the apparatus is further provided with a third imaging means (30 Fig.1) for capturing an image (Col. 11 lns 22-35) of another main surface (surface of 202 facing camera 30) of said DUT (202) before being picked up by moving means (12), and the identifying means (computer, Col. 9 lns 66-67, Col. 12 lns 58-64) calculates the position (X,Y) and posture (angle) of the input/output terminals (204 Fig.15) of the DUT (202) after being picked up by the moving means (12)from the image information captured by the first imaging means (20), second imaging means (24), and third imaging means (30) and identifies the relative position (X,Y) and posture (angle of DUT) of the DUT (202) after being picked up by the moving means (12) with respect to said contact unit (180) based on the results of these calculations.

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having a third imaging means and calculations based on the information received from the imaging means based on position and posture or the DUT as taught as ***Farnworth et al.*** to assure quality of the DUT's based on images taken by having the correct positioning and alignment of the DUT's when are being photograph by imaging means.

5. Claims 6 is ejected under 35 U.S.C. 103(a) as being unpatentable over ***Reynolds et al. (US 5,547,537)*** in view of ***Gilmore et al. (US 6,707,552)***.

As to claim 6, ***Reynolds et al.*** discloses everything above except wherein the first imaging means is provided at said moving means. However, ***Gilmore et al.*** discloses in Figure 3 wherein the imaging means (26) is provided in moving means (48).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having the imaging means in the moving means as taught as ***Gilmore et al.*** to make the system more cost-effective and to reduce the size of the testing system.

6. Claim 19 is ejected under 35 U.S.C. 103(a) as being unpatentable over ***Reynolds et al. (US 5,547,537)*** in view of ***Roy et al. (US 5,956,134)***.

As to claim 19, ***Reynolds et al.*** discloses everything above except wherein the moving means can move the picked up DUTs in any direction and can rotate them in any direction. However, ***Roy et al.*** discloses in Figure 3 a moving means (44) can move the picked up DUTs (12) in any direction (X,Y,Z) and can rotate (as shown by arrow on top of 42 in Figure3) them in any direction (Col. 5 lns 19-37).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having a moving means that can move DUT in any direction as taught as ***Roy et al.*** to make the system more cost-effective by not limiting to be a linear or parallel testing.

7. Claims 7-8,10-12 and 14-16 are ejected under 35 U.S.C. 103(a) as being unpatentable over ***Reynolds et al. (US 5,547,537)*** in view of ***Ham et al. (US 6,873,169)***.

As to claims 7 and 8, ***Reynolds et al.*** discloses everything above except a test plate having substantially smooth holding surfaces for holding the another main surfaces of the DUTs where input/output terminals are not led out, said moving means places the DUTs on the holding surfaces of the test plate having suction means so as to relatively correspond to the array of the contact units, and the input/output terminals of the DUTs electrically contact the corresponding contact units of the test head in the state with the DUTs held by the holding surfaces of the test plate in a positional relationship corresponding to the array of the contact units. However, ***Ham et al.*** discloses in Figures 1-4C a test plate (100) having substantially smooth holding surfaces (bottom side of 120 facing 101) for holding the another surface (surface of 101 facing 120) of said DUTs (101) where input/output terminals (101a) are not led out (as shown in Fig. 4C), moving means places the DUTs (101) on the holding surfaces (bottom side of 120 facing 101) of said test plate (100) having suction means (122) so as to relatively correspond to the array of said contact units (164, Col. 4, Ln 51 through Col. 5, Ln 19), and the input/output terminals (101a) of the DUTs (101) electrically contact the corresponding contact units (164) of the test head (160) in the state with the DUTs (101) held by the holding surfaces (bottom side of 120 facing 101) of the test plate (100) in a positional relationship corresponding to the array of the contact units (164).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having a test plate with holding surfaces and suction means as taught as ***Ham et al.*** to allow the system to perform testing to the DUT's accurately and with a good alignment between the contact units of the system.

As to claim 10, ***Reynolds et al.*** discloses everything above except wherein the test plate has holders provided in a rockable manner and the holders are formed at the holding surfaces of the test plate. However, ***Ham et al.*** discloses in Figures 1-4C wherein the test plate (100) has holders (140,150) provided in a rockable manner (movable back and forth as disclosed in Col. 4 lns 5-9) and the holders (140,150) are formed at the holding surfaces of the test plate (100).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having holders in a rockable manner as taught as ***Ham et al.*** to allow DUT's to be hold and release in an easy way.

As to claim 11, ***Reynolds et al.*** discloses everything above except wherein the contact units are provided with guide parts in their vicinities and the holders of the test plate are guided by the guide parts. However, ***Ham et al.*** discloses in Figures 1-4C the contact units (164) are provided with guide parts (162) in their vicinities and the holders (140,150) of the test plate (100) are guided by the guide parts (162, Col. 5 lns 20-30).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having guide parts in

the contact units as taught as ***Ham et al.*** to allow the DUT's to be hold and place aligned.

As to claims 14 and 15, ***Reynolds et al.*** discloses everything above except pushing means having elastic members and being provided at the test plate, for pushing the holders of the test plate so that the side surfaces of the holders abut against the guide surfaces. However, ***Ham et al.*** discloses in Figures 1-4C pushing means (170,130,132) having elastic members (132) and being provided at the test plate (100), for pushing the holders (140,150) of the test plate (100) so that the side surfaces (154) of the holders (140,150) abut against the guide surfaces (162, Col. 4 ln4 – Col. 5 ln 30).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the teachings of ***Reynolds et al.*** by having pushing means on the test plate as taught as ***Ham et al.*** to allow the DUT's to be hold and place aligned with the test head to performed electrical testings.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Reynolds et al. (US 5,547,537)*** in view of ***Ham et al. (US 6,873,169) further in view of Neo et al. (US 2003/0041656).***

As to claim 9, the combination of ***Reynolds et al.*** and ***Ham et al.*** discloses everything above except wherein the holding surfaces of the test plate hold the DUT's in the state with the input/output terminals of the DUTs directed vertically upward. However, ***Neo et al.*** discloses in Figure 2 wherein the holding surfaces (123) of the test

plate (120) hold the DUT's (130) in the state with the input/output terminals (134) of the DUTs directed vertically upward (as shown in Figure 2).

It would have been obvious for one ordinary skill in the art at the time the invention was made to modify the combined teachings of ***Reynolds et al.*** and ***Ham et al.*** by having the input/output terminals of DUT vertically upward as taught as ***Neo et al.*** to test the DUTs in the same way they are fabricated and to avoid to have a reverse DUTs mechanism in the system therefore reducing size and cost of the system.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Raney (US 5,794,526) discloses a "Die cutting and stamping press having simultaneous X,Y and O axes die registration mechanism and method".

Allowable Subject Matter

10. Claims 4,13,17-18 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 4, the prior art of record taken alone or in combination fails to teach wherein said identifying means calculates the position and posture of the input/output terminals of said DUT before being picked up by said moving means from the image

information captured by said first imaging means, calculates the position and posture of the outside shape of the other main surface of said DUT before being picked up by said moving means from the image information captured by said third imaging means, calculates the position and posture of the outside shape of the other main surface at said DUT picked up by said moving means from the image information captured by said second imaging means, and calculates the position and posture of the input/output terminals of the DUT picked up by said moving means based on the results of these calculations.

As to claim 13, the prior art of record taken alone or in combination fails to teach wherein the moving means places the DUTs on the holders of the test plate after correcting the positions and postures of the DUTs so that the distances from the side surfaces of the holders abutting against the guide surfaces to the DUTs become substantially equal to the distances from the guide surfaces in the vicinities of the contact units to the contact units.

As to claim 17, the prior art of record taken alone or in combination fails to teach wherein the positioning plate is formed so that the openings in which holders of the test plate can be inserted correspond to the array of contact units of the test head, and the moving means places the DUTs at the holders of the test plate while correcting their positions and postures in the state with the side surfaces of the holders of the test plate abutting against the inside walls of the openings of the positioning plate.

Claim 18 depending from claim 17 is objected for the same reason.

As to claim 4, the prior art of record taken alone or in combination fails to teach wherein said identifying step comprises: calculating the position and posture of the input/output terminals of said DUT before being picked up by said moving means from the image information captured at said first imaging step, calculating the position and posture of the outside shape of the other main surface of said DUT before being picked up by said moving means from the image information captured at said third imaging step, calculating the position and posture of the outside shape of the other main surface at said DUT picked up by said moving means from the image information captured at said second imaging step, and calculating the position and posture of the input/output terminals of the DUT picked up by said moving means based on the results of these calculations.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arleen M. Vazquez whose telephone number is 571-272-2619. The examiner can normally be reached on Monday to Friday, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMV

HA TRAN NGUYEN
SUPERVISORY PATENT EXAMINER

1-18-8